IN THE CLAIMS

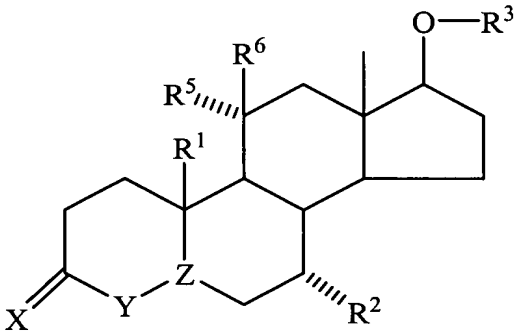
The status of each claim is provided below.

Claims 1-43 (Canceled):

44. (Previously Presented) 7α,11β-dimethyl-17β-[[(trans-4-(n-butyl)cyclohexyl)carbonyl]oxy]estr-4-en-3-one.

Claims 45-51: Canceled.

52. (Currently Amended) A compound of the formula (I):



(I)

wherein

R^1 is H or lower alkyl;

Y-Z is CH=;

R^2 is an α-substituent which is unsubstituted lower alkyl;

R^3 is (CO)-R^4, wherein R^4 is C_1-C_{18} ~~C_{10}~~ alkyl;

R^5 is α-H, and R^6 is β-lower alkyl; and

X is O.

53. (Previously Presented) The compound of Claim 52, wherein

R^1 is H;

R^2 is methyl; and

R^6 is methyl.

54. (Previously Presented) A pharmaceutical composition, comprising:

a) the compound of Claim 52; and

b) a pharmaceutically acceptable carrier.

55. (Previously Presented) A pharmaceutical composition, comprising:

a) the compound of Claim 53; and

b) a pharmaceutically acceptable carrier.

56. (Previously Presented) The pharmaceutical composition of Claim 54, which is suitable for injection.

57. (Previously Presented) The pharmaceutical composition of Claim 55, which is suitable for injection.

58. (Previously Presented) A method of effecting hormonal treatment in a mammal which comprises administering an effective amount of the compound of Claim 52 to a mammal in need thereof.

59. (Previously Presented) A method of effecting hormonal treatment in a mammal which comprises administering an effective amount of the compound of Claim 53 to a mammal in need thereof.

60. (Previously Presented) The method of Claim 58, wherein the mammal is a male.

61. (Previously Presented) The method of Claim 59, wherein the mammal is a male.

62. (Previously Presented) The method of Claim 58, wherein the mammal is a male and the hormonal treatment is controlling male fertility.

63. (Previously Presented) The method of Claim 59, wherein the mammal is a male and the hormonal treatment is controlling male fertility.

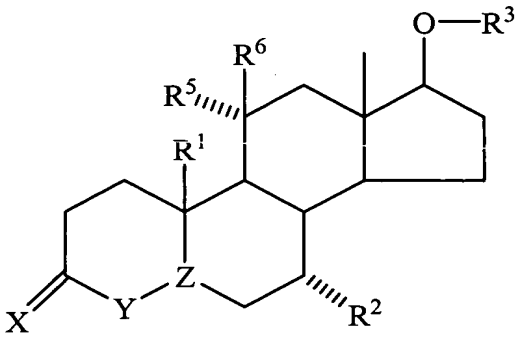
64. (Previously Presented) The method of Claim 58, further comprising administering a progestin.

65. (Previously Presented) The method of Claim 59, further comprising administering a progestin.

66. (Previously Presented) The method of Claim 58, wherein the method is treating muscle maintenance.

67. (Previously Presented) The method of Claim 59, wherein the method is treating muscle maintenance.

68. (Previously Presented) A method of making a compound of the formula (I):



(I)

wherein

R^1 is H or lower alkyl;

Y-Z is CH= or CH_2-CH, wherein H is α to the rings; or Y-CH, wherein H is α to the rings and Y is S, O, or NR^{10}, wherein R^{10} is H or lower alkyl;

R^2 is an α-substituent which is unsubstituted lower alkyl or fluoro-substituted lower alkyl;

R^3 is C_1-C_8 alkyl, or C_2-C_8 alkenyl or alkynyl which are optionally substituted; or R^3 is C_4-C_8 cycloalkyl which is unsubstituted or substituted; or R^3 is C_6-C_{18} aryl which is unsubstituted or substituted; or R^3 is a 5- to 15-membered heterocycle which is unsubstituted or substituted, and further wherein any of the above may be further substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both; or

R^3 is H or acyl group (CO)-R^4, wherein R^4 is C_1-C_{18} alkyl, or C_2-C_{18} alkenyl or C_2-C_{18} alkynyl which are optionally substituted; or R^4 is C_4-C_{18} cycloalkyl or substituted cycloalkyl; or R^4 is C_6-C_{18} aryl or substituted aryl; or R^4 is a 5- to 15-membered heterocycle or substituted heterocycle, and wherein R^4 may be optionally substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both;

R^5 is α-H, and R^6 is β-lower alkyl, alkenyl or alkynyl which are optionally substituted, or R^5R^6 is $=CH_2$; and

X is O, H_2, (H, OH) or (H, $OCOR^4$), wherein R^4 is as defined above; or X is (H, OR^3), wherein R^3 is as defined above; or X is NOR^7, wherein R^7 is H or C_1-C_8 alkyl, or C_2-C_8 alkenyl or alkynyl which are optionally substituted; or R^7 is C_4-C_8 cycloalkyl which is unsubstituted or substituted; or R^7 is C_6-C_{18} aryl or substituted aryl; or R^7 is a 5- to 15-membered heterocycle which is unsubstituted or substituted, and R^7 may be optionally substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both; or X is (OR^8, OR^9), where R^8 and R^9 are lower alkyl, or (OR^8, OR^9) is a cyclic structure containing 2 to 3 carbon atoms, optionally substituted with lower alkyl, or 1 or 2 heteroatoms or halogens;

which comprises:

a) introducing a 6,7-double bond into adrenosterone;

b) effecting 1,6-addition of a methyl group by reaction with an organometallic reagent, followed by acid treatment;

c) introducing a 1,2-double bond;

d) protecting the 17-ketone functionality;

e) reducing the 11-ketone group to an 11-hydroxy group;

f) aromatizing the A-ring to a phenol;

g) alkylating the phenol ring to an alkoxy arene compound;

h) oxidizing the 11-hydroxyl to an 11-ketone;

i) converting the 11-ketone to 11-methylene;

j) removing the protecting group at C-17 to yield the ketone;

k) reducing the 11-methylene to 11β-methyl;

l) reducing the 17-ketone to 17β-hydroxyl; and

m) converting the 3-alkoxy arene to a 4-en-3-one compound.

69 (Previously Presented): The method of Claim 68, wherein step a) is effected by an electronegatively-substituted quinone.

70 (Previously Presented): The method of Claim 68, wherein step b) is effected by a methyllithium copper complex.

71 (Previously Presented): The method of Claim 68, wherein step c) is effected by an electronegatively-substituted quinone.

72 (Previously Presented): The method of Claim 68, wherein step d) is effected by ketal formation with a 1,2- or 1,3-diol.

73 (Previously Presented): The method of Claim 68, wherein step e) is effected by a complex metal hydride reagent.

74 (Previously Presented): The method of Claim 68, wherein step f) is effected by a metal/arene mixture.

75 (Previously Presented): The method of Claim 68, wherein step g) is effected by either an alkyl halide or an activated alkyl ester in the presence of a base.

76 (Previously Presented): The method of Claim 68, wherein step h) is effected by a chromium oxidant.

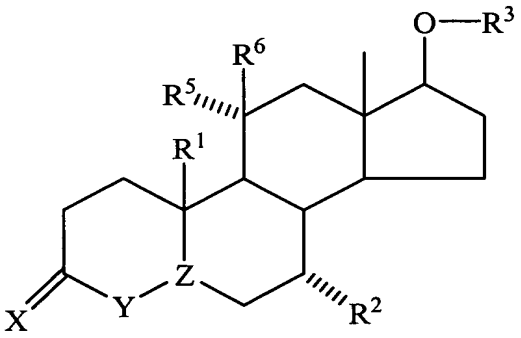
77 (Previously Presented): The method of Claim 68, wherein step i) and j) are effected by a trialkyl silylmethyl organometallic reagent followed by treatment with an acid.

78 (Previously Presented): The method of Claim 68, wherein step k) is effected by metal-catalyzed hydrogenation.

79 (Previously Presented): The method of Claim 68, wherein step l) is effected by a complex metal hydride reagent.

80 (Previously Presented): The method of Claim 68, wherein step m) is effected by a dissolving metal in an amine solvent followed by acid treatment.

81 (Previously Presented) A method of making a compound of the formula (I):



(I)

wherein

R^1 is H or lower alkyl;

Y-Z is CH= or CH_2-CH, wherein H is α to the rings; or Y-CH, wherein H is α to the rings and Y is S, O, or NR^{10}, wherein R^{10} is H or lower alkyl;

R^2 is an α-substituent which is unsubstituted lower alkyl or fluoro-substituted lower alkyl;

R^3 is C_1-C_8 alkyl, or C_2-C_8 alkenyl or alkynyl which are optionally substituted; or R^3 is C_4-C_8 cycloalkyl which is unsubstituted or substituted; or R^3 is C_6-C_{18} aryl which is unsubstituted or substituted; or R^3 is a 5- to 15-membered heterocycle which is unsubstituted or substituted, and further wherein any of the above may be further substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both; or

R^3 is H or acyl group (CO)-R^4, wherein R^4 is C_1-C_{18} alkyl, or C_2-C_{18} alkenyl or C_2-C_{18} alkynyl which are optionally substituted; or R^4 is C_4-C_{18} cycloalkyl or substituted cycloalkyl; or R^4 is C_6-C_{18} aryl or substituted aryl; or R^4 is a 5- to 15-membered heterocycle or substituted heterocycle, and wherein R^4 may be optionally substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both;

R^5 is α-H, and R^6 is β-lower alkyl, alkenyl or alkynyl which are optionally substituted, or R^5R^6 is $=CH_2$; and

X is O, H_2, (H, OH) or (H, $OCOR^4$), wherein R^4 is as defined above; or X is (H, OR^3), wherein R^3 is as defined above; or X is NOR^7, wherein R^7 is H or C_1-C_8 alkyl, or C_2-C_8 alkenyl or alkynyl which are optionally substituted; or R^7 is C_4-C_8 cycloalkyl which is unsubstituted or substituted; or R^7 is C_6-C_{18} aryl or substituted aryl; or R^7 is a 5- to 15-membered heterocycle which is unsubstituted or substituted, and R^7 may be optionally substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both; or X is (OR^8, OR^9), where R^8 and R^9 are lower alkyl, or (OR^8, OR^9) is a cyclic structure containing 2 to 3 carbon atoms, optionally substituted with lower alkyl, or 1 or 2 heteroatoms or halogens,

which consists essentially of introducing the 7α-substituent prior to introducing the 11β-substituent.

82 (Previously Presented): A method of making 7α,11β-dimethyl-17β-[[(trans-4-(n-butyl)cyclohexyl)carbonyl]oxy]estr-4-en-3-one, which consists essentially of introducing the 7α-methyl substituent prior to introducing the 11β-methyl substituent.

83 (Previously Presented): A method of making the compound of Claim 52, which consists essentially of introducing the 7α-substituent prior to introducing the 11β-substituent.

84 (Previously Presented): A method of making the compound of Claim 53, which consists essentially of introducing the 7α-methyl substituent prior to introducing the 11β-methyl substituent.

85. (New) A method of effecting hormonal treatment in a mammal which comprises administering an effective amount of 7α,11β-dimethyl-17β-[[(trans-4-(n-butyl)cyclohexyl)carbonyl]oxy]estr-4-en-3-one to a mammal in need thereof.

86. (New) The method of Claim 85, wherein the mammal is a male.

87. (New) The method of Claim 85, wherein the mammal is a male and the hormonal treatment is controlling male fertility.

88. (New) The method of Claim 85, further comprising administering a progestin.

89. (New) The method of Claim 85, wherein the method is treating muscle maintenance.

SUPPORT FOR THE AMENDMENT

The amendment to Claim 52 is supported by the specification at page 5, line 12. Newly-added Claims 85-89 are supported by the original specification. No new matter is believed to have been to the application by the amendment submitted above.